

## 4.0 ENVIRONMENTAL IMPACTS

The environmental impacts of all major Federal actions, including agency rules, must be considered prior to implementation to determine whether they would significantly affect the quality of the human environment. This chapter describes the anticipated direct, indirect, and cumulative environmental and socioeconomic impacts of the No Action and action alternatives. Although not a reasonable alternative, the No Action Alternative provides the baseline against which to compare the impacts of the proposed action.

This EA analyzes the impacts of several alternatives that define the ZMRG. Because the Federal action analyzed in this EA is rulemaking, it is difficult to predict how the rule will be applied. The TRPs will include measures designed for fisheries to achieve the ZMRG. Because those measures have not yet been designed, the impacts identified in this chapter may seem general in nature. However, it is important to note that TRPs would require their own NEPA analysis before being implemented. Therefore, specific impacts would be identified during the TRP NEPA processes according to the specific provisions of the TRP that would directly affect protected marine populations and US commercial fisheries.

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### 4.1 Impacts on Protected Marine Populations

This section discusses the potential impacts of the alternatives on protected marine populations: sea turtles, sea birds, fishes, and marine mammals.

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#### 4.1.1 Sea Turtles, Sea Birds, and Salmonids and Other Protected Fishes

Under the No Action Alternative, the lack of a regulatory ZMRG definition could result in moderate, negative impacts to marine mammal stocks as discussed below, and this should result in even fewer negative, indirect impacts to sea turtles, sea birds, and salmonids and other protected fishes because the ZMRG does not address species other than marine mammals. Such negative, indirect impacts would be in the form of bycatch from commercial fishery operations. A lack of measures to protect marine mammals would not result in indirect bycatch reduction of other marine species.

Under each action alternative, potential impacts on sea turtles, sea birds, and salmonids and other protected fishes would be minor, indirect, and positive. To meet the long-term goal of reducing incidental mortality and serious injury of marine mammals, a specific TRP may require gear modifications or some other technique that may benefit bycatch reduction of these other marine species as well.

#### 4.1.2 Marine Mammals

For the purposes of this EA, if data exist for marine mammals, the data are assumed to be reliable (unless specified in the SARs to be unreliable), and  $T_{ins}$  is calculated under each alternative. During implementation of the ZMRG provision in cases with unreliable estimates, NMFS may consider other measures to define the target level for such stocks.

Because some marine mammal stocks do not have a reliable abundance estimate (used to calculate  $N_{min}$ ),  $T_{ins}$  cannot be calculated for such stocks under any alternative. Also, some stocks do not have incidental mortality estimates, which prevents calculation to determine whether incidental mortality and serious injury exceed  $T_{ins}$ . Stocks that lack  $N_{min}$ , mortality estimates, or both (see Table 4-1) have not been included in the analysis although several of them have experienced incidental mortality and serious injury. Therefore, it cannot be assumed that fisheries achieve ZMRG for such stocks under any alternative. Such stocks would be treated as experiencing incidental mortality and serious injury exceeding insignificant levels approaching zero until enough data are collected to estimate the  $N_{min}$  and mortality level. (Note: According to the SARs, some stocks are thought to have little or no interaction with fisheries. Such stocks are not included in Table 4-1.)

Of the 19 stocks with insufficient data, seven are in the Alaska region, five are in the Atlantic region, and seven are in the Pacific region. Only the fin whale, sperm whale, and Hawaiian monk seal stocks in Table 4-1 are endangered. There are no other known depleted or ESA-listed stocks in Table 4-1.

**Table 4-1**  
**Marine Mammal Stocks with Insufficient Data to**  
**Determine ZMRG Achievement\***

Region	Species	Stock	Estimated Annual Fishery Mortality	N <sub>min</sub>
Alaska	Bearded Seal	Alaska	1	Unavailable
Alaska	Fin Whale	Northeast Pacific	0.8	Unavailable
Alaska	Minke Whale	Alaska	0.3	Unavailable
Alaska	Pacific White-Sided Dolphin	Central North Pacific (CNP)	4	Outdated**
Alaska	Ribbon Seal	Alaska	1	Unavailable
Alaska	Sperm Whale	North Pacific	0.4	Unavailable
Alaska	Spotted Seal	Alaska	3	Unavailable
Atlantic	Bottlenose Dolphin	Gulf of Mexico Bay, Sound, & Estuarine	Unavailable***	3933
Atlantic	Gray Seal	Western North Atlantic (WNA)	131	Unavailable
Atlantic	Harp Seal	WNA	109	Unavailable
Atlantic	Hooded Seal	WNA	16	Unavailable
Atlantic	Spinner Dolphin	WNA	0.31	Unavailable
Pacific	Hawaiian Monk Seal	Hawaii	Unavailable	1378
Pacific	Killer Whale	Hawaii	Unavailable	Unavailable
Pacific	Melon-Headed Whale	Hawaii	Unavailable	81
Pacific	Pygmy Killer Whale	Hawaii	Unavailable	Unavailable
Pacific	Risso's Dolphin	Hawaii	Unavailable	Unavailable
Pacific	Rough-Toothed Dolphin	Hawaii	Unavailable	Unavailable
Pacific	Striped Dolphin	Hawaii	Unavailable	52

\* This table excludes stocks that have an estimated mortality of zero regardless of an unavailable N<sub>min</sub>.  
 \*\* According to Wade and Angliss (1997), abundance estimates older than eight years should not be used in calculations. For this stock, N<sub>min</sub> was 26,880 in 1993. Unless the population has decreased substantially, it is highly likely that this stock would experience a level of incidental mortality and serious injury less than T<sub>ins</sub> under all alternatives.  
 \*\*\* While no mortality estimates are available for this stock, stranding data indicate that incidental fishery interactions result in mortality and serious injury.  
 Source: NMFS, 2003c.

#### 4.1.2.1 Alternative 1: No Action Alternative

The No Action Alternative would not provide a regulatory definition of ZMRG. However, NMFS would continue to use the criterion of ten percent of a stock's PBR to evaluate whether incidental mortality and serious injury is at insignificant levels approaching a zero rate for purposes of the SARs, which are informational reports.

Without a defined ZMRG, it is possible that some marine mammal stocks may not be protected to the full extent as provided in Section 118 of the MMPA. NMFS must review and report to Congress on the progress of all commercial fisheries, by fishery, toward reducing incidental mortality and serious injury to ZMRG. NMFS cannot reasonably

conduct this review and report without a definition of ZMRG. The report could track reductions in mortality, but it could not determine the progress of fisheries toward a target level without a defined ZMRG. In addition, TRTs and NMFS would experience difficulty in establishing the amount of incidental mortality and serious injury to reduce in the long term without a defined ZMRG. This could result in moderate, negative impacts to marine mammal stocks if TRTs decide that the long-term goal of reducing incidental mortality and serious injury has been met based on various criteria chosen by TRT members as opposed to a standard, regulatory definition of ZMRG; this may not result in sufficient reductions. On the other hand, the No Action Alternative could also result in overprotection if the ZMRG is interpreted as having a target equal to zero.

Although the No Action Alternative would not define ZMRG, the data describing incidental mortality and serious injury for this alternative are identical to those for Alternative 2 and are only analyzed in section 4.1.2.2. Although the No Action Alternative would not have a formal  $T_{ins}$ , for the purposes of comparison of alternatives in this EA, the calculation of  $T_{ins}$  would be the same for both alternatives as NMFS would likely continue to use ten percent of PBR as the guideline for an undefined ZMRG under the No Action Alternative. The only difference between the No Action Alternative and Alternative 2 is that Alternative 2 would provide a regulatory definition of ZMRG thus quantifying a TRP's long-term goal.

#### **Depleted and ESA-listed Stocks**

As mentioned above, analysis of effects on depleted and ESA-listed stocks under the No Action Alternative would be the same as that under Alternative 2, with the exception that the No Action Alternative would not result in a regulatory definition of ZMRG. The detailed discussion follows in section 4.1.2.2.

#### **4.1.2.2 Alternative 2: Preferred Alternative**

Although similar to the No Action Alternative, Alternative 2 would have fewer adverse effects and more positive impacts because the ZMRG would have a regulatory definition and likely lead to greater reduction of incidental mortality and serious injury. The same procedure would be used to determine which stocks would be under consideration for convening TRTs.

Of all the action alternatives, Alternative 2 is protective of the greatest number of marine mammal stocks (see Table 4-2); implementation of Alternative 2 would result in 34 stocks with incidental mortality and serious injury exceeding  $T_{ins}$ . Therefore, relative to the other alternatives, Alternative 2 would have the greatest positive impacts by indicating the need for the greatest reduction of incidental mortality and serious injury of marine mammals that interact with commercial fisheries. Also, when compared to the other alternatives, Alternative 2 is the most protective of endangered stocks because it would allow endangered stocks only a one-percent recovery delay (see discussion of recovery delay in Chapter 2 and see Table 2-1). Alternative 2, like Alternative 4, is more protective of stocks of threatened, declining, or unknown status than Alternative 3.

Alternative 2 would result in substantial positive impacts to marine mammals, and NMFS has selected Alternative 2 as the preferred alternative.

**Table 4-2**  
**Summary: Marine Mammal Stocks with**  
**Incidental Mortality and Serious Injury Exceeding  $T_{ins}$**

Region	Alternative 1: No Action <sup>1</sup>	Alternative 2	Alternative 3	Alternative 4
Alaska	5	5	1	4
Atlantic	14	14	11	13
Pacific	12	12	7	11
<b>TOTAL</b>	<b>31</b>	<b>31</b>	<b>19</b>	<b>28</b>
<sup>1</sup> For the purposes of analysis, calculations for the No Action Alternative are based on the interpretation of ZMRG as currently used in SARs (10% of PBR). Source: NMFS, 2003c.				

A regulatory definition of ZMRG would facilitate TRP design because the TRTs would know that the specific long-term goal would be to reduce incidental mortality and serious injury to *less than or equal to ten percent of PBR*. Ambiguity concerning ZMRG would be dissolved. While this would not necessarily generate more resources for NMFS to convene TRTs, it would clarify which fisheries have met the ZMRG. This could result in substantial, positive impacts to marine mammal stocks if TRTs design TRPs that effectively meet the ZMRG.

### Alaska Region

Under Alternative 2, five stocks in the Alaska region would experience incidental mortality and serious injury greater than  $T_{ins}$  as shown in Table 4-3.

**Table 4-3**  
**Marine Mammal Stocks in the Alaska Region with**  
**Incidental Mortality and Serious Injury Exceeding  $T_{ins}$  under Alternative 2**

Species	Stock	Estimated Annual Fishery Mortality	$T_{ins}$	PBR
Humpback whale	CNP	4.2	0.74	7.4
Humpback whale	Western North Pacific (WNP)	0.8	0.07	0.7
Killer whale	Eastern North Pacific (ENP) Northern Resident	1.4	0.72	7.2
Killer whale	ENP Transient	0.6	0.28	2.8
Steller Sea Lion	Western US	25.9	20.9	209
Source: NMFS, 2003c.				

Enough data exist for the Southeast Alaska feeding aggregation of humpbacks, which is part of the CNP stock, to be analyzed independently of the entire stock. NMFS is considering designating this feeding aggregation as a separate stock. Calculated independently of the entire stock, the feeding aggregation's PBR is 3.5. With an estimated annual fishery mortality of 2.2, the Southeast Alaska portion of the stock would experience incidental mortality and serious injury greater than 0.35, which is the aggregation's  $T_{ins}$  under Alternative 2.

### Atlantic Region

Under Alternative 2, 14 stocks in the Atlantic region would experience incidental mortality and serious injury greater than  $T_{ins}$  as shown in Table 4-4.

**Table 4-4**  
**Marine Mammal Stocks in the Atlantic Region with**  
**Incidental Mortality and Serious Injury Exceeding  $T_{ins}$  under Alternative 2**

Species	Stock	Estimated Annual Fishery Mortality	$T_{ins}$	PBR
Atlantic White-Sided Dolphin	WNA	102	36.4	364
Bottlenose Dolphin	Western Gulf of Mexico	13	2.9	29
Bottlenose Dolphin	WNA (coastal)*	257	15.16	151.6
Bottlenose Dolphin	WNA (offshore)	27	24.9	249
Common Dolphin	WNA	190	22.7	227
False Killer Whale	Northern Gulf of Mexico Oceanic	1	0.59	5.9
Fin Whale	WNA	0.6	0.47	4.7
Harbor Porpoise	Gulf of Maine/Bay of Fundy (after TRP)	318	74.7	747
Harbor Seal	WNA	955	549.3	5493
Humpback Whale	Gulf of Maine	1.6	0.13	1.3
North Atlantic Right Whale**	WNA	1.2	0	0
Pilot Whales (long- and short-finned)***	WNA	221	10.8	108
Pygmy Sperm Whale	WNA	6	0.37	3.7
Risso's Dolphin	WNA	51	22	220
<p>* The WNA coastal stock of bottlenose dolphins is described in terms of several management units in the SARs. Therefore, for the purposes of this EA, the winter estimates for the management units were combined to analyze the entire stock.</p> <p>** Due to recent population decline of this endangered species, its PBR and <math>T_{ins}</math> are zero.</p> <p>*** Species-specific estimates are not available as mortality data do not distinguish between the two species. Calculations shown represent the entire genus of the WNA.</p> <p>Source: NMFS, 2003c.</p>				

## Pacific Region

Under Alternative 2, 12 stocks in the Pacific region would experience incidental mortality and serious injury greater than  $T_{ins}$  as shown in Table 4-5.

**Table 4-5**  
**Marine Mammal Stocks in the Pacific Region with**  
**Incidental Mortality and Serious Injury Exceeding  $T_{ins}$  under Alternative 2**

Species	Stock	Estimated Annual Fishery Mortality	$T_{ins}$	PBR
California Sea Lion	US	1476	833.3	8333
False Killer Whale	Hawaii	4.6-6.9*	0.08	0.8
Fin Whale	California/Oregon/Washington (CA/OR/WA)	1	0.51	5.1
Harbor Porpoise	Monterey Bay	3	1.1	11
Harbor Porpoise	Morro Bay	4.8	0.7	7
Harbor Porpoise	Washington Inland Waters	15.2	2	20
Harbor Seal	California	433	154.3	1543
Humpback Whale	ENP	$\geq 0.8$	0.135	1.35
Northern Right-Whale Dolphin	CA/OR/WA	23	16.4	164
Short-Finned Pilot Whale	CA/OR/WA	1.2	0.119	1.19
Short-Finned Pilot Whale	Hawaiian	0-2.3*	1.3	13
Sperm Whale	CA/OR/WA	1	0.18	1.8

\* The estimated mortality for these species is a range with the high end including unidentified cetaceans in the area that were incidentally killed or seriously injured.  
Source: NMFS, 2003c.

### Depleted and ESA-listed Stocks

Alternative 2 is the only action alternative that would protect stocks to different degrees according to their status as demonstrated by different recovery delays (see Chapter 2 discussion and Table 2-1). While Alternative 2 uses ten percent of PBR as the  $T_{ins}$  for all stocks,  $F_r$  (of the PBR equation) can vary for each stock according to stock status. As a stock's population status declines, the stock's  $F_r$  decreases, thus making  $T_{ins}$  lower in value. Therefore, Alternative 2 is the only action alternative that would give increased protection to endangered stocks. Alternative 2 would allow a recovery delay (using the assumption that other causes of recovery delay are negligible; see discussion in Chapter 2) of less than or equal to one percent for endangered stocks (see Table 2-1), which is the shortest allowable delay in recovery for any stock under any alternative. Regarding protection of threatened stocks, depleted stocks, or stocks of unknown status, Alternative 2, like Alternative 4, would be more protective than Alternative 3. Finally, Alternative 2, like Alternative 3, would be less protective of healthy stocks than Alternative 4.

Implementation of Alternative 2 would result in the following ten depleted or ESA-listed stocks with incidental mortality and serious injury exceeding  $T_{ins}$ :



- *Endangered* humpback whale (CNP, WNP, Gulf of Maine, and ENP stocks).
- *Endangered* Steller sea lion (Western US stock).
- *Depleted* bottlenose dolphin (WNA coastal stock).
- *Endangered* fin whale (WNA and CA/OR/WA stocks).
- *Endangered* North Atlantic right whale (WNA stock).
- *Endangered* sperm whale (CA/OR/WA stock).

Excluding the endangered species in Table 4-1 as discussed in section 4.1, other depleted or ESA-listed stocks (see section 3.1.1) are not known to interact with US commercial fisheries.

#### 4.1.2.3 Alternative 3

Of all the alternatives, Alternative 3 protects the fewest marine mammal stocks (see Table 4-2); implementation of Alternative 3 would result in 22 stocks with incidental mortality and serious injury exceeding  $T_{ins}$ . Therefore, Alternative 3 would have the fewest positive impacts on the reduction of incidental mortality and serious injury of marine mammals that interact with commercial fisheries.

A regulatory definition of ZMRG would facilitate TRP design because the TRTs would know that the specific long-term goal would be to reduce incidental mortality and serious injury to *a level causing less than a ten percent delay in recovery* (see Table 2-1). Ambiguity concerning ZMRG would be dissolved. While this would not necessarily generate more resources for NMFS to convene TRTs, it would clarify which fisheries have met the ZMRG. This could result in moderate, positive impacts to marine mammal stocks if TRTs design a TRP that effectively meets the ZMRG. However, under Alternative 3, ZMRG would be protective of fewer stocks than the current interpretation (ten percent of PBR) so it is more likely that Alternative 3 would result in moderate, negative impacts to stocks by requiring fewer reductions in incidental mortality and serious injury than the other alternatives. Existing TRTs would have less incentive to be as protective of marine mammals.

#### Alaska Region

Under Alternative 3, one stock in the Alaska region would have incidental mortality and serious injury greater than  $T_{ins}$  as shown in Table 4-6.

**Table 4-6**  
**Marine Mammal Stock in the Alaska Region with**  
**Incidental Mortality and Serious Injury Exceeding  $T_{ins}$  under Alternative 3**

Species	Stock	Estimated Annual Fishery Mortality	$T_{ins}$	PBR
Humpback whale	WNP	0.8	0.734	0.7

Source: NMFS, 2003c.

Enough data exist for the Southeast Alaska feeding aggregation of humpbacks, which is part of the CNP stock, to be analyzed independently of the entire stock. NMFS is considering designating this feeding aggregation as a separate stock. Calculated independently of the entire stock, the feeding aggregation's PBR is 3.5. With an estimated annual fishery mortality of 2.2, the Southeast Alaska portion of the stock would experience incidental mortality and serious injury greater than 1.736, which is the aggregation's  $T_{ins}$  under Alternative 3.

## Atlantic Region

Under Alternative 3, 11 stocks in the Atlantic region would have incidental mortality and serious injury greater than  $T_{ins}$  as shown in Table 4-7.

**Table 4-7**  
**Marine Mammal Stocks in the Atlantic Region with**  
**Incidental Mortality and Serious Injury Exceeding  $T_{ins}$  under Alternative 3**

Species	Stock	Estimated Annual Fishery Mortality	$T_{ins}$	PBR
Atlantic White-Sided Dolphin	WNA	102	75.81	364
Bottlenose Dolphin	Western Gulf of Mexico	13	5.876	29
Bottlenose Dolphin	WNA (coastal)*	257	30.27	151.6
Common Dolphin	WNA	190	47.31	227
Harbor Porpoise	Gulf of Maine/Bay of Fundy (after TRP)	318	149.39	747
Harbor Seal	WNA	955	549.276	5493
Humpback Whale	Gulf of Maine	1.6	1.294	1.3
North Atlantic Right Whale**	WNA	1.2	0	0
Pilot Whales (long- and short-finned)***	WNA	221	22.686	108
Pygmy Sperm Whale	WNA	6	0.746	3.7
Risso's Dolphin	WNA	51	45.832	220

\* The WNA coastal stock of bottlenose dolphins is described in terms of several management units in the SARs. Therefore, for the purposes of this EA, the winter estimates for the management units were combined to analyze the entire stock.

\*\* Due to recent population decline of this endangered species, the PBR and  $T_{ins}$  are zero.

\*\*\* Species-specific estimates are not available as mortality data do not distinguish between the two species.

Calculations shown represent the entire genus of the WNA.

Source: NMFS, 2003c.

## Pacific Region

Under Alternative 3, seven stocks in the Pacific region would have incidental mortality and serious injury greater than  $T_{ins}$  as shown in Table 4-8.

**Table 4-8**  
**Marine Mammal Stocks in the Pacific Region with**  
**Incidental Mortality and Serious Injury Exceeding  $T_{ins}$  under Alternative 3**

Species	Stock	Estimated Annual Fishery Mortality	$T_{ins}$	PBR
California Sea Lion	US	1476	833.286	8333
False Killer Whale	Hawaii	4.6-6.9*	0.166	0.8
Harbor Porpoise	Monterey Bay	3	2.284	11
Harbor Porpoise	Morro Bay	4.8	1.338	7
Harbor Porpoise	Washington Inland Waters	15.2	5.09	20
Harbor Seal	California	433	154.32	1543
Short-Finned Pilot Whale	CA/OR/WA	1.2	0.298	1.19

\* The estimated mortality for this species is a range with the high end including unidentified cetaceans in the area that were incidentally killed or seriously injured.  
Source: NMFS, 2003c.

### Depleted and ESA-listed Stocks

Alternative 3 would protect all stocks to the same degree relative to recovery delay caused by incidental mortality and serious injury from commercial fisheries (see Chapter 2 for discussion of recovery delay); there would be no preferential protection for depleted or ESA-listed stocks relative to healthy, robust stocks. Healthy, depleted, threatened, and endangered stocks would experience no more than a ten-percent delay in recovery resulting from interactions with commercial fisheries. It would be the least protective alternative of all stocks, generally; however, it would be equally as protective of healthy stocks as Alternative 2.

Implementation of Alternative 3 would result in incidental mortality and serious injury exceeding  $T_{ins}$  for the following four depleted or ESA-listed stocks:

- *Endangered* humpback whale (WNP and Gulf of Maine stocks).
- *Depleted* bottlenose dolphin (WNA coastal stock).
- *Endangered* North Atlantic right whale (WNA stock).

Excluding the endangered species in Table 4-1 as discussed in section 4.1, other depleted or ESA-listed stocks (see section 3.1.1) are not known to interact with US commercial fisheries.

#### 4.1.2.4 Alternative 4

Alternative 4 is slightly less protective of marine mammals than Alternative 2 and moderately more protective than Alternative 3 (see Table 4-2); implementation of Alternative 4 would result in 31 stocks with incidental mortality and serious injury exceeding  $T_{ins}$ . Therefore, Alternative 4 would have moderate, positive impacts on the reduction of incidental mortality and serious injury of marine mammals that interact with commercial fisheries.

A regulatory definition of ZMRG would facilitate TRP design because the TRTs would know that the specific long-term goal would be to reduce incidental mortality and serious injury to *a level causing less than a five percent delay in recovery* (see Table 2-1). Ambiguity concerning ZMRG would be dissolved. While this would not generate more resources for NMFS to convene TRTs, it would clarify which stocks have met the ZMRG. This could result in substantial, positive impacts to marine mammal stocks if TRTs design a TRP that effectively meets the ZMRG.

However, generally under Alternative 4, ZMRG would be protective of slightly fewer stocks than the current interpretation (ten percent of PBR) so it is more likely that Alternative 4 would result in minor, negative impacts to stocks by requiring fewer efforts to reduce incidental mortality and serious injury. Under Alternative 4, existing TRTs would have less incentive than under Alternative 2 to be as protective of marine mammals. An exception to this generality is that Alternative 4 is more protective of healthy, robust stocks than the other alternatives. For example, under Alternative 4 the  $T_{ins}$  for the healthy, robust California sea lion stock is about half the value of that under the other alternatives.

### Alaska Region

Under Alternative 4, four stocks in the Alaska region would have incidental mortality and serious injury greater than  $T_{ins}$  as shown in Table 4-9.

**Table 4-9**  
**Marine Mammal Stocks in the Alaska Region with**  
**Incidental Mortality and Serious Injury Exceeding  $T_{ins}$  under Alternative 4**

Species	Stock	Estimated Annual Fishery Mortality	$T_{ins}$	PBR
Humpback whale	CNP	4.2	3.698	7.4
Humpback whale	WNP	0.8	0.367	0.7
Killer whale	ENP Northern Resident	1.4	0.723	7.2
Killer whale	ENP Transient	0.6	0.346	2.8

Source: NMFS, 2003c.

Enough data exist for the Southeast Alaska feeding aggregation of humpbacks, which is part of the CNP stock, to be analyzed independently of the entire stock. NMFS is considering designating this feeding aggregation as a separate stock. Calculated independently of the entire stock, the feeding aggregation's PBR is 3.5. With an estimated annual fishery mortality of 2.2, the Southeast Alaska portion of the stock would experience incidental mortality and serious injury greater than 0.868, which is the aggregation's  $T_{ins}$  under Alternative 4.

## Atlantic Region

Under Alternative 4, 13 stocks in the Atlantic region would have incidental mortality and serious injury greater than  $T_{ins}$  as shown in Table 4-10.

**Table 4-10**  
**Marine Mammal Stocks in the Atlantic Region with**  
**Incidental Mortality and Serious Injury Exceeding  $T_{ins}$  under Alternative 4**

Species	Stock	Estimated Annual Fishery Mortality	$T_{ins}$	PBR
Atlantic White-Sided Dolphin	WNA	102	37.904	364
Bottlenose Dolphin	Western Gulf of Mexico	13	2.938	29
Bottlenose Dolphin	WNA (coastal)*	257	15.14	151.6
Bottlenose Dolphin	WNA (offshore)	27	24.897	249
Common Dolphin	WNA	190	23.655	227
False Killer Whale	Northern Gulf of Mexico Oceanic	1	0.587	5.9
Harbor Porpoise	Gulf of Maine/Bay of Fundy (after TRP)	318	74.695	747
Harbor Seal	WNA	955	274.638	5493
Humpback Whale	Gulf of Maine	1.6	0.647	1.3
North Atlantic Right Whale**	WNA	1.2	0	0
Pilot Whales (long- and short-finned)***	WNA	221	11.343	108
Pygmy Sperm Whale	WNA	6	0.373	3.7
Risso's Dolphin	WNA	51	22.916	220

\* The WNA coastal stock of bottlenose dolphins is described in terms of several management units in the SARs. Therefore, for the purposes of this EA, the winter estimates for the management units were combined to analyze the entire stock.

\*\* Due to recent population decline of this endangered species, the PBR and  $T_{ins}$  are zero.

\*\*\* Species-specific estimates are not available as mortality data do not distinguish between the two species. Calculations shown represent the entire genus of the WNA.

Source: NMFS, 2003c.

## Pacific Region

Under Alternative 4, 11 stocks in the Pacific region would have incidental mortality and serious injury greater than  $T_{ins}$  as shown in Table 4-11.

**Table 4-11**  
**Marine Mammal Stocks in the Pacific Region with**  
**Incidental Mortality and Serious Injury Exceeding  $T_{ins}$  under Alternative 4.**

Species	Stock	Estimated Annual Fishery Mortality	$T_{ins}$	PBR
California Sea Lion	US	1476	416.643	8333
False Killer Whale	Hawaii	4.6-6.9	0.083	0.8
Harbor Porpoise	Monterey Bay	3	1.142	11
Harbor Porpoise	Morro Bay	4.8	0.669	7
Harbor Porpoise	Washington Inland Waters	15.2	2.545	20
Harbor Seal	California	433	77.16	1543
Humpback Whale	Eastern North Pacific	$\geq 0.8$	0.681	1.35
Northern Right-Whale Dolphin	CA/OR/WA	23	16.417	164
Short-Finned Pilot Whale	CA/OR/WA	1.2	0.149	1.19
Short-Finned Pilot Whale	Hawaiian	0-2.3*	1.313	13
Sperm Whale	CA/OR/WA	1	0.885	1.8

\* The estimated mortality for these species is a range with the high end including unidentified cetaceans in the area that were incidentally killed or seriously injured.  
Source: NMFS, 2003c.

### Depleted and ESA-listed Stocks

Alternative 4 would protect all stocks to the same degree relative to recovery delay caused by incidental mortality and serious injury from commercial fisheries (see Chapter 2 for discussion of recovery delay); there would be no preferential protection for depleted or ESA-listed stocks relative to healthy, robust stocks. Healthy, depleted, threatened, and endangered stocks would experience no more than a five-percent delay in recovery resulting from interactions with commercial fisheries. It would be the most protective alternative of all stocks with the exception of endangered stocks, which would be most protected by Alternative 2.

Implementation of Alternative 4 would result in incidental mortality and serious injury exceeding  $T_{ins}$  for the following seven depleted or ESA-listed stocks:

- *Endangered* humpback whale (CNP, WNP, Gulf of Maine, and ENP stocks).
- *Depleted* bottlenose dolphin (WNA coastal stock).
- *Endangered* North Atlantic right whale (WNA stock).
- *Endangered* sperm whale (CA/OR/WA stock).

Excluding the endangered species in Table 4-1 as discussed in section 4.1, other depleted or ESA-listed stocks (see section 3.1.1) are not known to interact with US commercial fisheries.

## 4.2 Impacts on US Commercial Fisheries

This section analyzes the impacts of the alternatives on active US commercial fisheries. Because the TRP provisions cannot be predicted, no data exist to quantitatively describe the socioeconomic impacts of each alternative on fisheries. Therefore, this section consists of mostly qualitative socioeconomic analysis. Also, this section only analyzes commercial fisheries that would fail to meet the ZMRG for various stocks under each alternative. Although not mentioned in this EA, other fisheries are also responsible for incidental mortality and serious injury of marine mammals; however, their levels of incidental mortality and serious injury are considered insignificant (less than or equal to  $T_{ins}$ ) under each alternative.

Because some marine mammal stocks do not have a reliable abundance estimate (used to calculate  $N_{min}$ ),  $T_{ins}$  cannot be calculated for such stocks under any alternative. Also, some fisheries lack incidental mortality estimates for stocks with which they interact, which prevents calculation to determine whether incidental mortality and serious injury exceed  $T_{ins}$ . Stocks that lack  $N_{min}$ , mortality estimates, or both have not been included in the analysis although several of them have experienced incidental mortality and serious injury by various fisheries (see Table 4-12; it is probable that other unidentified commercial fisheries, not listed in the table, are also responsible for incidental interactions with marine mammals.). Therefore, it cannot be assumed that such fisheries achieve the ZMRG under any alternative. However, these fisheries may still be categorized in the LOF based on: fishing techniques, gear used, methods to deter marine mammal, target species, seasons and areas fished, qualitative data from logbooks or fisher reports, stranding data, and the species and distribution of marine mammals in the area.

**Table 4-12**  
**Commercial Fisheries with Insufficient Species-Specific Data to**  
**Determine ZMRG Achievement**

Region	Fishery	Category	Species (Stock)	Estimated Annual Fishery Mortality	N <sub>min</sub>
Alaska	Bering Sea/Aleutian Islands (BSAI) Groundfish Trawl	3	Bearded Seal (Alaska)	0.6	Unavailable
			Fin Whale (Northeast Pacific)	0.6	Unavailable
			Minke Whale (Alaska)	0.3	Unavailable
			Ribbon Seal (Alaska)	0.2	Unavailable
			Spotted Seal (Alaska)	1	Unavailable
Alaska	BSAI Groundfish Longline	3	Pacific White-Sided Dolphin (CNP)	0.8	Outdated*
Alaska	Bristol Bay Salmon Drift Gillnet	2	Pacific White-Sided Dolphin (CNP)	≥ 0.75	Outdated*
			Spotted Seal (Alaska)	≥ 1.5	Unavailable
Alaska	Prince William Sound Salmon Drift Gillnet	2	Pacific White-Sided Dolphin (CNP)	≥ 1.25	Outdated*
Alaska	Southeast Alaska Salmon Drift Gillnet	2	Pacific White-Sided Dolphin (CNP)	≥ 0.25	Outdated*
Alaska	Gulf of Alaska Groundfish Longline	3	Sperm Whale (North Pacific)	0.4	Unavailable
Atlantic	Gulf of Mexico Gillnet**	2	Bottlenose Dolphin (Gulf of Mexico Bay, Sound, & Estuarine)	Unavailable	3933
Atlantic	Northeast Sink Gillnet	1	Gray Seal (WNA)	131	Unavailable
			Harp Seal (WNA)	96	Unavailable
			Hooded Seal (WNA)	16	Unavailable
Atlantic	Mid-Atlantic Coastal Gillnet	1	Harp Seal (WNA)	3	Unavailable
Atlantic	North Atlantic Bottom Trawl	3	Harp Seal (WNA)	10	Unavailable
Atlantic	Northeast Drift Gillnet	2	Spinner Dolphin (WNA)	0.31	Unavailable
Pacific	Hawaiian Gillnet***	3	Killer Whale (Hawaii)	Unavailable	Unavailable
			Risso's Dolphin (Hawaii)	Unavailable	Unavailable
			Melon-Headed Whale (Hawaii)	Unavailable	81
			Pygmy Killer Whale (Hawaii)	Unavailable	Unavailable
			Rough-Toothed Dolphin (Hawaii)	Unavailable	Unavailable
			Striped Dolphin (Hawaii)	Unavailable	52



Region	Fishery	Category	Species (Stock)	Estimated Annual Fishery Mortality	N <sub>min</sub>
Pacific	Hawaiian Pelagic Longline***	3	Killer Whale (Hawaii)	Unavailable	Unavailable
			Risso's Dolphin (Hawaii)	Unavailable	Unavailable
			Melon-Headed Whale (Hawaii)	Unavailable	81
			Pygmy Killer Whale (Hawaii)	Unavailable	Unavailable
			Rough-Toothed Dolphin (Hawaii)	Unavailable	Unavailable
			Striped Dolphin (Hawaii)	Unavailable	52
			Hawaiian Monk Seal (Hawaii)	Unavailable	1378
Pacific	Northwest Hawaiian Deep Sea Bottomfish***	3	Killer Whale (Hawaii)	Unavailable	Unavailable
			Melon-Headed Whale (Hawaii)	Unavailable	81
			Pygmy Killer Whale (Hawaii)	Unavailable	Unavailable
			Risso's Dolphin (Hawaii)	Unavailable	Unavailable
			Rough-Toothed Dolphin (Hawaii)	Unavailable	Unavailable
			Striped Dolphin (Hawaii)	Unavailable	52
			Hawaiian Monk Seal (Hawaii)	Unavailable	1378
<p>* According to Wade and Angliss (1997), abundance estimates older than eight years should not be used in calculations. For this stock, N<sub>min</sub> was 26,880 in 1993. Unless the population has decreased substantially, it is likely that this stock would experience a level of incidental mortality and serious injury less than T<sub>ins</sub> under all alternatives.</p> <p>** While no mortality estimates are available, stranding data indicate that incidental interactions with the Gulf of Mexico gillnet fisheries result in mortality and serious injury.</p> <p>*** While no mortality data exist, it is possible that this fishery is responsible for incidental mortality and serious injury because interactions between marine mammals and these fisheries have been observed.</p> <p>Sources: NMFS, 2003b &amp; 2003c.</p>					

Regarding the 19 stocks with insufficient data to determine whether ZMRG has been met, 14 commercial fisheries are responsible or likely responsible for incidental interactions. Six are in the Alaska region, five are in the Atlantic region, and three are in the Pacific region (concentrated in the Hawaiian area). While the Gulf of Mexico gillnet, Hawaiian gillnet, Hawaiian pelagic longline, and Northwest Hawaiian deep sea bottomfish fisheries do not have data linking them directly to incidental mortality or serious injury of marine mammals, stranding data and observation of marine mammal interactions indicate that they are probably responsible for interactions with the stocks listed accordingly in Table 4-12. For the fisheries that are known to be responsible for marine mammal incidental mortality and serious injury, it is not known whether these fisheries meet the ZMRG because there is no available N<sub>min</sub> for those stocks. Therefore, T<sub>ins</sub> cannot be calculated for those stocks.

Under each alternative, the existing TRTs would continue meeting. All existing TRTs address stocks that do not meet the ZMRG according to T<sub>ins</sub> as calculated under each

alternative. In other words, the fisheries that are the foci of current TRTs would not meet ZMRG regardless of which alternative is implemented. Under the action alternatives, which define ZMRG, the TRT would be required to include measures in the TRP to achieve ZMRG.

Under the No Action Alternative and Alternative 2, the fishery classification scheme would not change, and there would be no impacts on the process to produce the annual LOF. If Alternatives 3 or 4 were implemented, a new fishery classification scheme would be necessary as the triggers to categorize fisheries would no longer correspond with existing criteria. For the purposes of this analysis and because NMFS has identified Alternative 2 as the preferred alternative, a potential new fishery classification scheme will not be analyzed in this EA.

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#### 4.2.1 Alternative 1: No Action Alternative

Without a regulatory definition of ZMRG, TRTs would continue not to be able to properly quantify the long-term goal (achieving ZMRG) for a stock's reduction in incidental mortality and serious injury because no target for reduction would exist. There would be no basis for determining when a fishery no longer has to reduce incidental mortality and serious injury. This would perpetuate the current difficulty in determining when TRTs may be terminated because the TRT would lack adequate regulatory guidance to create a TRP that reduces incidental mortality and serious injury enough to achieve the ZMRG. Such ambiguity may stifle fishermen's incentives to modify gear or fishing practices to reduce bycatch and interactions with marine mammals. Such ambiguity may also unnecessarily extend the TRT process, which could cost participants time and money.

The No Action Alternative would not likely result in any direct, socioeconomic impacts on US commercial fisheries. However, the possibility would exist that a TRT may interpret ZMRG as having a target equal to zero, which could result in potential, minor socioeconomic impacts. Under the No Action Alternative, all existing TRTs would continue to meet as they currently do. The No Action Alternative would not change the TRT process as it currently exists, and therefore, would not give the TRTs sufficient guidance (no specific target) regarding achievement of their long-term goal as provided in Section 118(f) of the MMPA.

However, potential minor, indirect, negative and positive, socioeconomic impacts could result, although unlikely, from the fact that the ZMRG would remain undefined. Without a ZMRG definition, TRTs have no quantified long-term goal for the TRP. These minor, indirect socioeconomic impacts relate to opportunity costs and to direct costs resulting from potential management measures included in a TRP. Opportunity costs apply to the TRT participants and directly correlate with the length of the TRT process. Generally, the opportunity costs are lost fishing time and potential income during TRT meetings. Because NMFS does not pay the TRT participants, no financial compensation would offset these opportunity costs. Negative impacts may occur if the ambiguity causes a

TRT to meet for a longer time than necessary. Positive impacts may occur if the ambiguity causes a TRT to meet for a shorter time period; however, such positive impacts could result in less reduction of incidental mortality and serious injury, which is a negative ecological impact.

The fishery as a whole may have fewer negative socioeconomic impacts under the No Action Alternatives than under the action alternatives due to the possibility that less-stringent measures would be implemented in a TRP without a defined ZMRG. Less-stringent measures would likely result in fewer direct costs to the fishermen, depending on the provisions of the TRP. Therefore, the No Action Alternative is likely to have fewer negative socioeconomic impacts on all fishery participants than the action alternatives. However, such results may cause less reduction of incidental mortality and serious injury for marine mammals, which would be a negative ecological impact.

Like in section 4.1.1, data for the No Action Alternative are identical to those for Alternative 2 and are analyzed in section 4.2.2.

#### 4.2.2 Alternative 2: Preferred Alternative

As the most conservative alternative, Alternative 2 would result in the greatest number of fisheries exceeding insignificant levels of mortality and serious injury (see Table 4-13). Therefore, Alternative 2 would result in the greatest number of fisheries requiring reduction of incidental mortality and serious injury.

**Table 4-13**  
**Summary: Commercial Fisheries with**  
**Incidental Mortality and Serious Injury Exceeding  $T_{ins}$**

Region	Alternative 1: No Action*	Alternative 2	Alternative 3	Alternative 4
Alaska	4	4	0	3
Atlantic	8	8	5	6
Pacific	6	6	3	4
<b>TOTAL</b>	<b>18</b>	<b>18</b>	<b>8</b>	<b>13</b>
<small>For the purposes of analysis, calculations for the No Action Alternative are based on the interpretation of ZMRG as currently used in SARs (10% of PBR). Sources: NMFS, 2003b &amp; 2003c.</small>				

Because Alternative 2 would affect the greatest number of fisheries and may result in the most-stringent measures in TRPs, it would have the largest number of potential, minor, direct and indirect, negative impacts on fishery socioeconomics. Impacts on fishermen are expected to be minor because they are represented on the TRT, and the TRT would take into consideration economic feasibility of the entire fishery when designing a TRP. Also, because Alternative 2 is protective of the most marine mammal stocks and most protective of endangered species, more effort and more-stringent measures may be required to achieve the long-term goal of TRPs under Alternative 2 than under the other alternatives. Indirect, socioeconomic impacts relate to opportunity costs, such as lost fishing time and increased fishing restrictions. Opportunity costs to the TRT participants

directly correlate with the length of the TRT process. Generally, the opportunity costs are lost fishing time and potential income while the TRT meets. Because NMFS does not pay the TRT participants, no financial compensation would offset these opportunity costs.

The costs to all fishery participants would result from potential TRP measures, such as time and area closures and gear modification or replacement, which would reduce their fishing effort and likely result in direct costs to the fishermen. Such direct costs could include gear replacement and fuel to get to new fishing areas if some are closed. Alternative 2 would impose more potential costs on TRT participants than any of the other alternatives because a greater number of fisheries would be subject to the TRT process (see Table 4-13), and because Alternative 2 is the most biologically conservative alternative, it could result in the most-stringent measures in TRPs.

#### 4.2.2.1 Alaska Region

Under Alternative 2, four commercial fisheries in the Alaska region would not achieve the ZMRG. Of the four fisheries, three would not meet the ZMRG for one stock each, and one would not meet the ZMRG for two different stocks (see Table 4-14).

**Table 4-14**  
**Commercial Fisheries in the Alaska Region with**  
**Incidental Mortality and Serious Injury Exceeding  $T_{ins}$  under Alternative 2**

Fishery	Category	Species (Stock)	Estimated Annual Mortality	$T_{ins}$	PBR
Unknown (includes Hawaiian area)	N/A*	Humpback whale (CNP)	2.6	0.74	7.4
BSAI Groundfish Trawl	3	Humpback whale (WNP)	0.6	0.07	0.7
		Killer whale (ENP Transient)	0.4	0.28	2.8
BSAI Groundfish Longline	3	Killer whale (ENP Northern Resident)	0.8	0.72	7.2
Unknown Bering Sea fishery	N/A*	Humpback whale (WNP)	$\geq 0.2$	0.07	0.7

\* N/A = not applicable. Because the fishery is unknown, it cannot be categorized.  
Sources: NMFS, 2003b & 2003c.

#### 4.2.2.2 Atlantic Region

Under Alternative 2, eight commercial fisheries in the Atlantic region would not achieve the ZMRG. Of the eight fisheries, five would not meet the ZMRG for one stock each, one would not meet the ZMRG for two stocks, one would not meet the ZMRG for three stocks, and one would not meet the ZMRG for five stocks (see Table 4-15).

**Table 4-15**  
**Commercial Fisheries in the Atlantic Region with**  
**Incidental Mortality and Serious Injury Exceeding T<sub>ins</sub> under Alternative 2**

<b>Fishery</b>	<b>Category</b>	<b>Species (Stock)</b>	<b>Estimated Annual Mortality</b>	<b>T<sub>ins</sub></b>	<b>PBR</b>
Atlantic Ocean, Caribbean, Gulf of Mexico Large Pelagics Longline	1	Risso's Dolphin (WNA)	48	22	220
Northeast/Mid-Atlantic American Lobster Trap/Pot	1	North Atlantic Right Whale (WNA)	> 0	0	0
Northeast Sink Gillnet	1	Atlantic White-Sided Dolphin (WNA)	59	36.4	364
		Bottlenose Dolphin (WNA offshore)	26	24.9	249
		Common Dolphin (WNA)	29	22.7	227
		Harbor Porpoise (after TRP) (Gulf of Maine/Bay of Fundy)	277	74.7	747
		Harbor Seal (WNA)	953	549.3	5493
Mid-Atlantic Coastal Gillnet	1	Bottlenose Dolphin (WNA coastal)	233	15.16	151.6
Southeastern US Atlantic Shark Gillnet	2	Bottlenose Dolphin (WNA coastal)	24	15.16	151.6
Atlantic Squid, Mackerel, Butterfish Trawl	1	Common Dolphin (WNA)	122	22.7	227
		Long- and Short-Finned Pilot Whales (WNA)	76	10.8	108
Atlantic Ocean, Caribbean, Gulf of Mexico Large Pelagics Longline	1	Long- and Short-Finned Pilot Whales (WNA)	123	10.8	108
		Risso's Dolphin (WNA)	48	22	220
		Pygmy Sperm Whale (WNA)	6	0.37	3.7
Northeast Atlantic Herring Joint Venture Mid-Water Trawl	(2)*	Long- and Short-Finned Pilot Whales (WNA)	11	10.8	108
* While the domestic fishery is in Category 2, there is technically no category for a joint-venture fishery because a joint venture fishery is international. Sources: NMFS, 2003b & 2003c.					

### 4.2.2.3 Pacific Region

Under Alternative 2, six commercial fisheries in the Pacific region would not achieve the ZMRG. Of the six fisheries, three would not meet the ZMRG for one stock each, one would not meet the ZMRG for two stocks, and two would not meet the ZMRG for four stocks each (see Table 4-16).

**Table 4-16**  
**Commercial Fisheries in the Pacific Region with**  
**Incidental Mortality and Serious Injury Exceeding  $T_{ins}$  under Alternative 2**

Fishery	Category	Species (Stock)	Estimated Annual Mortality	$T_{ins}$	PBR
California Angel Shark and Halibut Set Gillnet	1	California Sea Lion (US)	1267	833.3	8333
		Harbor Porpoise (Monterey Bay)	3	1.1	11
		Harbor Porpoise (Morro Bay)	4.8	0.7	7
		Harbor Seal (California)	429	154.3	1543
California/Oregon Thresher Shark and Swordfish Drift Gillnet	2	Fin Whale (CA/OR/WA)	1	0.51	5.1
		Northern Right-Whale Dolphin (CA/OR/WA)	23	16.4	164
		Short-Finned Pilot Whale (CA/OR/WA)	1.2	0.119	1.19
		Sperm Whale (CA/OR/WA)	1	0.18	1.8
Washington Puget Sound Treaty and Non-Treaty Salmon Drift Gillnet	2	Harbor Porpoise (Washington Inland Waters)	15	2	20
CA/OR/WA Salmon Troll	3	Humpback Whale (ENP)	> 0.2	0.135	1.35
Unknown	N/A*	Humpback Whale (ENP)	> 0.6	0.135	1.35
Hawaiian Swordfish, Tuna, Billfish, Mahi Mahi, Wahoo, Oceanic Shark Longline/Set Line	3	Short-Finned Pilot Whale (Hawaii)	0-2.3**	1.3	13
		False Killer Whale (Hawaii)	4.6-6.9**	0.08	0.8

\* N/A = not applicable. Because the fishery is unknown, it cannot be categorized.  
 \*\* The estimated mortality for these species is a range with the high end including unidentified cetaceans in the area that were incidentally killed or seriously injured.  
 Sources: NMFS, 2003b & 2003c.

### 4.2.3 Alternative 3

As the least conservative alternative, Alternative 3 would result in the fewest fisheries exceeding insignificant levels of incidental mortality and serious injury (see Table 4-13). Therefore, Alternative 3 would result in the fewest number of fisheries requiring reduction of incidental mortality and serious injury.

Because Alternative 3 would affect the fewest number of fisheries and may result in the least-stringent measures in TRPs, it would have the fewest potential, minor, direct and indirect, negative impacts on fishery socioeconomics. Also, because Alternative 3 is generally the least protective of marine mammal stocks, less effort would likely be required to achieve the long-term goal of TRPs under Alternative 3 than under the other alternatives. Impacts on fishermen are expected to be minor because they are represented on the TRT, and the TRT would take into consideration economic feasibility of the entire fishery when designing a TRP. The indirect socioeconomic impacts relate to opportunity costs. Opportunity costs to the TRT participants directly correlate with the length of the TRT process. Generally, the opportunity costs are lost fishing time and potential income while the TRT meets. Because NMFS does not pay the TRT participants, no financial compensation would offset these opportunity costs. The opportunity costs to all fishery participants would result from potential TRP measures, such as time and area closures, that would reduce their fishing effort. Under Alternative 3, opportunity costs would be small because fewer fisheries would be subject to TRTs than under any other alternative and because TRPs may include the least-stringent measures when compared to the other alternatives.

Direct costs to all members of the fishery would be based on potential TRP measures. In addition to time and area restrictions as mentioned above, such measures could include gear modification or replacement, which would likely result in direct costs to the fishermen as they would have to alter their gear or purchase new types of gear.

#### 4.2.3.1 Alaska Region

Under Alternative 3, only the commercial fisheries in the Alaska region that interact with the WNP stock of humpback whales would fail to achieve the ZMRG. Although the WNP stock of humpback whales would have incidental mortality and serious injury (0.8) exceeding insignificant levels ( $T_{ins} = 0.734$ ), no single fishery is responsible for enough incidental mortality and serious injury to prevent it from achieving the ZMRG according to the first criterion (see discussion of the two-tiered approach in section 2.2) under Alternative 3. However, as provided in Section 118(f)(2) of the MMPA, a TRT still has the long-term goal for commercial fishing operations to achieve ZMRG for a strategic stock. Implementing the second criterion of the two-tiered approach, ten percent of  $T_{ins}$  for this stock under Alternative 3 would be 0.0734. The BSAI groundfish trawl and an unknown fishery are the only fisheries that interact with this stock, and they both have estimated annual fishery mortalities (0.6 and 0.2, respectively) that exceed ten percent of  $T_{ins}$ . Therefore, a TRP would be necessary for both fisheries to reduce incidental mortality and serious injury of the WNP stock of humpback whales.

### 4.2.3.2 Atlantic Region

Under Alternative 3, five commercial fisheries in the Atlantic region would not achieve the ZMRG. Of the five fisheries, two would not meet the ZMRG for one stock each, two would not meet the ZMRG for two stocks each, and one would not meet the ZMRG for three stocks (see Table 4-17).

**Table 4-17**  
**Commercial Fisheries in the Atlantic Region with**  
**Incidental Mortality and Serious Injury Exceeding  $T_{ins}$  under Alternative 3**

Fishery	Category	Species (Stock)	Estimated Annual Mortality	T <sub>ins</sub>	PBR
Northeast/Mid-Atlantic American Lobster Trap/Pot	1	North Atlantic Right Whale (WNA)	> 0	0	0
Northeast Sink Gillnet	1	Harbor Porpoise (after TRP) (Gulf of Maine/Bay of Fundy)	277	149.39	747
		Harbor Seal (WNA)	953	549.276	5493
Mid-Atlantic Coastal Gillnet	1	Bottlenose Dolphin (WNA coastal)	233	30.27	151.6
Atlantic Squid, Mackerel, Butterfish Trawl	1	Common Dolphin (WNA)	90	47.31	227
		Long- and Short-Finned Pilot Whales (WNA)	76	22.686	108
Atlantic Ocean, Caribbean, Gulf of Mexico Large Pelagics Longline	1	Long- and Short-Finned Pilot Whales (WNA)	123	22.686	108
		Risso's Dolphin (WNA)	48	45.832	220
		Pygmy Sperm Whale (WNA)	6	0.746	3.7
* N/A = not applicable. Because the fishery is unknown, it cannot be categorized. Sources: NMFS, 2003b & 2003c.					



### 4.2.3.3 Pacific Region

Under Alternative 3, three commercial fisheries in the Pacific region would not achieve the ZMRG. Of the three fisheries, one would not meet the ZMRG for one stock, one would not meet the ZMRG for two stocks, and one would not meet the ZMRG for four stocks (see Table 4-18).

**Table 4-18**  
**Commercial Fisheries in the Pacific Region with**  
**Incidental Mortality and Serious Injury Exceeding  $T_{ins}$  under Alternative 3**

Fishery	Category	Species (Stock)	Estimated Annual Mortality	$T_{ins}$	PBR
California Angel Shark and Halibut Set Gillnet	1	California Sea Lion (US)	1267	833.3	8333
		Harbor Porpoise (Monterey Bay)	3	2.284	11
		Harbor Porpoise (Morro Bay)	4.8	1.338	7
		Harbor Seal (California)	429	154.32	1543
California/Oregon Thresher Shark and Swordfish Drift Gillnet	2	Short-Finned Pilot Whale (CA/OR/WA)	1.2	0.298	1.19
Washington Puget Sound Treaty and Non-Treaty Salmon Drift Gillnet	2	Harbor Porpoise (Washington Inland Waters)	15	5.09	20
		False Killer Whale (Hawaii)	4.6-6.9**	0.166	0.8

\* N/A = not applicable. Because the fishery is unknown, it cannot be categorized.  
 \*\* The estimated mortality for these species is a range with the high end including unidentified cetaceans in the area that were incidentally killed or seriously injured.  
 Sources: NMFS, 2003b & 2003c.

### 4.2.4 Alternative 4

As the moderately conservative alternative, Alternative 4 would result in a moderate number of fisheries responsible for exceeding insignificant levels of incidental mortality and serious injury (see Table 4-13). Therefore, Alternative 4 would result in a moderate number of fisheries requiring reduction of incidental mortality and serious injury.

Because Alternative 4 would affect a moderate number of fisheries and may result in moderately-stringent measures in TRPs, it would have moderate amounts of potential, minor, direct and indirect, negative impacts on fishery socioeconomics when compared to the other alternatives. Impacts on fishermen are expected to be minor because they are represented on the TRT, and the TRT would take into consideration economic feasibility of the entire fishery when designing a TRP. The indirect socioeconomic impacts relate to opportunity costs. Opportunity costs to the TRT participants directly correlate with the

length of the TRT process. Generally, the opportunity costs are lost fishing time and potential income while the TRT meets. Because NMFS does not pay the TRT participants, no financial compensation would offset these opportunity costs. The opportunity costs to all fishery participants would result from potential TRP measures, such as time and area closures, that would reduce their fishing effort. Under Alternative 4, opportunity costs would be moderate due to the number of fisheries that would be subject to TRTs when compared to other alternatives because TRPs may include moderately-stringent measures when compared to the other alternatives.

Direct costs to all members of the fishery would be based on potential TRP measures. In addition to time and area restrictions as mentioned above, such measures could include gear modification or replacement, which would likely result in direct costs to the fishermen as they would have to alter their gear or purchase new types of gear.

#### 4.2.4.1 Alaska Region

Under Alternative 4, three commercial fisheries in the Alaska region would not achieve the ZMRG. Of the three fisheries, two would not meet the ZMRG for one stock each, and one would not meet the ZMRG for two stocks (see Table 4-19).

**Table 4-19**  
**Commercial Fisheries in the Alaska Region with**  
**Incidental Mortality and Serious Injury Exceeding  $T_{ins}$  under Alternative 4**

Fishery	Category	Species (Stock)	Estimated Annual Mortality	$T_{ins}$	PBR
Unknown	N/A*	Humpback Whale (CNP)	2.6	3.698	7.4
BSAI Groundfish Trawl	3	Humpback whale (WNP)	0.6	0.367	0.7
		Killer whale (ENP Transient)	0.4	0.346	2.8
BSAI Groundfish Longline	3	Killer whale (ENP Northern Resident)	0.8	0.723	7.2

\* N/A = not applicable. Because the fishery is unknown, it cannot be categorized.  
Sources: NMFS, 2003b & 2003c.

#### 4.2.4.2 Atlantic Region

Under Alternative 4, six commercial fisheries in the Atlantic region would not achieve the ZMRG. Of the six fisheries, three would not meet the ZMRG for one stock each, one would not meet the ZMRG for two stocks, one would not meet the ZMRG for three stocks, and one would not meet the ZMRG for five stocks (see Table 4-20).

**Table 4-20**  
**Commercial Fisheries in the Atlantic Region with**  
**Incidental Mortality and Serious Injury Exceeding  $T_{ins}$  under Alternative 4**

Fishery	Category	Species (Stock)	Estimated Annual Mortality	T <sub>ins</sub>	PBR
Northeast/Mid-Atlantic American Lobster Trap/Pot	1	North Atlantic Right Whale (WNA)	> 0	0	0
Northeast Sink Gillnet	1	Atlantic White-Sided Dolphin (WNA)	59	37.904	364
		Bottlenose Dolphin (WNA offshore)	26	24.897	249
		Common Dolphin (WNA)	29	23.655	227
		Harbor Porpoise (after TRP) (Gulf of Maine/Bay of Fundy)	277	74.695	747
		Harbor Seal (WNA)	953	274.638	5493
Mid-Atlantic Coastal Gillnet	1	Bottlenose Dolphin (WNA coastal)	233	15.14	151.6
Southeastern US Atlantic Shark Gillnet	2	Bottlenose Dolphin (WNA coastal)	24	15.14	151.6
Atlantic Squid, Mackerel, and Butterfish Trawl	1	Common Dolphin (WNA)	122	23.655	227
		Long- and Short-Finned Pilot Whales (WNA)	76	11.343	108
Atlantic Ocean, Caribbean, Gulf of Mexico Large Pelagics Longline	1	Long- and Short-Finned Pilot Whales (WNA)	123	11.343	108
		Risso's Dolphin (WNA)	48	22.916	220
		Pygmy Sperm Whale (WNA)	6	0.373	3.7
* N/A = not applicable. Because the fishery is unknown, it cannot be categorized. Sources: NMFS, 2003b & 2003c.					

#### 4.2.4.3 Pacific Region

Under Alternative 4, four commercial fisheries in the Pacific region would not achieve the ZMRG. Of the four fisheries, one would not meet the ZMRG for one stock, one would not meet the ZMRG for two stocks, one would not meet the ZMRG for three stocks, and one would not meet the ZMRG for four stocks (see Table 4-21).

**Table 4-21**  
**Commercial Fisheries in the Pacific Region with**  
**Incidental Mortality and Serious Injury Exceeding  $T_{ins}$  under Alternative 4**

Fishery	Category	Species/Stock	Estimated Annual Mortality	T <sub>ins</sub>	PBR
California Angel Shark and Halibut Set Gillnet	1	California Sea Lion (US)	1267	416.643	8333
		Harbor Porpoise (Monterey Bay)	3	1.142	11
		Harbor Porpoise (Morro Bay)	4.8	0.669	7
		Harbor Seal (California)	429	77.16	1543
California/Oregon Thresher Shark and Swordfish Drift Gillnet	2	Northern Right-Whale Dolphin (CA/OR/WA)	23	16.417	164
		Short-Finned Pilot Whale (CA/OR/WA)	1.2	0.149	1.19
		Sperm Whale (CA/OR/WA)	1	0.885	1.8
Washington Puget Sound Treaty and Non-Treaty Salmon Drift Gillnet	2	Harbor Porpoise (Washington Inland Waters)	15	2.545	20
Hawaiian Swordfish, Tuna, Billfish, Mahi Mahi, Wahoo, Oceanic Shark Longline/Set Line	3	Short-Finned Pilot Whale (Hawaii)	0-2.3**	1.313	13
		False Killer Whale (Hawaii)	4.6-6.9**	0.083	0.8
* N/A = not applicable. Because the fishery is unknown, it cannot be categorized.					
** The estimated mortality for these species is a range with the high end including unidentified cetaceans in the area that were incidentally killed or seriously injured.					
Sources: NMFS, 2003b & 2003c.					

### 4.3 Regulatory Impacts

This section discusses the regulatory impacts of implementing each alternative with regard to applicable laws, namely the MMPA, ESA, Magnuson-Stevens Act, EO 12866, and RFA. Only the MMPA and the Magnuson-Stevens Act are discussed individually under each alternative.

None of the alternatives are likely to adversely affect ESA-listed species or their critical habitat. Listed species are discussed above in section 4.1. Therefore, no formal Section 7 consultation is necessary under any of the alternatives (see Appendix B).

In conjunction with this EA, NMFS will publish an analysis in accordance with NMFS procedures to determine compliance with EO 12866 and the RFA (see Appendix C).

### **4.3.1 Alternative 1: No Action Alternative**

#### **4.3.1.1 MMPA**

The implementation of the No Action Alternative would be inconsistent with the MMPA. Section 118 of the MMPA requires commercial fisheries to meet the ZMRG. Without a defined ZMRG, it would be difficult for a fishery to meet that goal. According to the April 2003 settlement agreement, NMFS agreed to define ZMRG in a final rule. The No Action Alternative would prevent NMFS from abiding by the agreement. Therefore, the No Action Alternative is not a feasible option.

#### **4.3.1.2 Magnuson-Stevens Act**

The No Action Alternative would have an indirect, minor, negative effect on the Magnuson-Stevens Act concerning bycatch reduction. Because there would be no regulatory definition of ZMRG under the No Action Alternative, TRTs would be less likely to develop and require measures in TRPs to reduce marine mammal incidental mortality and serious injury to an insignificant level approaching a zero rate. Since such measures could have ancillary benefits for bycatch reduction of other species, the resulting indirect, minor, negative effect would be that bycatch of species under the jurisdiction of the Magnuson-Stevens Act may not be reduced as much as it would be with a defined ZMRG.

The No Action Alternative would not affect EFH, and therefore, no formal consultation with the NMFS Office of Habitat is required (see Appendix B).

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### **4.3.2 Alternative 2: Preferred Alternative**

#### **4.3.2.1 MMPA**

By defining the ZMRG to be achieved when incidental mortality and serious injury levels are reduced to ten percent or less of PBR (see Table 2-1), Alternative 2 would be consistent with the requirements of MMPA Section 118 related to ZMRG. Also, Alternative 2 would be consistent with all other sections of the MMPA.

#### **4.3.2.2 Magnuson-Stevens Act**

Alternative 2 would have a minor, positive effect bycatch reduction of species under the jurisdiction of the Magnuson-Stevens Act. Alternative 2 would require marine mammal incidental mortality and serious injury to be reduced to an insignificant level approaching a zero rate. Also, an indirect, minor, positive effect would be that bycatch of species under the jurisdiction of the Magnuson-Stevens Act may be further reduced as a result of defining ZMRG. It is likely that TRTs would propose gear modifications or other restrictions that would reduce bycatch of other non-target species as a positive side effect of techniques to reduce marine mammal incidental mortality and serious injury.

Compared to the other action alternatives, these minor, positive effects on bycatch reduction would be greatest under Alternative 2 because it is the most protective alternative (see Tables 4-2 and 4-13).

Defining ZMRG under Alternative 2 would have unknown impacts on EFH, and no formal consultation with the NMFS Office of Habitat Conservation is necessary (see Appendix B). However, it is possible that future TRP provisions would take into account possible impacts on EFH. For example, if a take-reduction measure shifts fishing effort to a new location that has otherwise been unaffected by fishing operations, such new fishing effort should be analyzed to determine if EFH would be affected. Similarly, future TRP provisions could benefit EFH by, for example, restricting certain types of fishing gear in areas that have EFH. If appropriate, NEPA analysis and coordination with the NMFS Office of Habitat Conservation would be conducted for new TRP provisions.

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### 4.3.3 Alternative 3

#### 4.3.3.1 MMPA

Alternative 3 would be consistent with the April 2003 settlement agreement in defining ZMRG, but it would not be fully consistent with the MMPA. By defining the ZMRG to be achieved when incidental mortality and serious injury levels are reduced to a point that causes no more than a ten-percent recovery delay (see Table 2-1), Alternative 3 would be consistent with the requirements of Section 118(b) but would not be consistent with the requirements of Section 118(f)(2). Section 118(f)(2) describes the short- and long-term goals of TRPs. For endangered species under Alternative 3,  $T_{ins}$  would be equal to PBR. This is inconsistent with the two separate goals of TRPs. Therefore, Alternative 3 would not be feasible.

#### 4.3.3.2 Magnuson-Stevens Act

Like Alternative 2, Alternative 3 would have an indirect, minor, positive effect on bycatch reduction of species under the jurisdiction of the Magnuson-Stevens Act. Alternative 3 would require marine mammal incidental mortality and serious injury to be reduced to an insignificant level approaching a zero rate. The indirect, minor, positive effect would be that bycatch of species under the jurisdiction of the Magnuson-Stevens Act may be further reduced as a result of defining ZMRG. It is likely that TRTs would propose gear modifications and other restrictions that would reduce bycatch of other non-target species as a positive side effect to the techniques to reduce marine mammal incidental mortality and serious injury. Compared to the other action alternatives, these minor, positive effects on bycatch reduction would be the smallest under Alternative 3 because it is the least protective alternative (see Tables 4-2 and 4-13).

Defining ZMRG under Alternative 3 would have unknown impacts on EFH, and no formal consultation with the NMFS Office of Habitat Conservation is necessary (see Appendix B). However, it is possible that future TRP provisions would take into account

possible impacts on EFH. For example, if a take-reduction measure shifts fishing effort to a new location that has otherwise been unaffected by fishing operations, such new fishing effort should be analyzed to determine if EFH would be affected. Similarly, future TRP provisions could benefit EFH by, for example, restricting certain types of fishing gear in areas that have EFH. If appropriate, NEPA analysis and coordination with the NMFS Office of Habitat Conservation would be conducted for new TRP provisions.

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#### **4.3.4 Alternative 4**

##### **4.3.4.1 MMPA**

By defining the ZMRG to be achieved when incidental mortality and serious injury levels are reduced to a point that causes no more than a five-percent recovery delay (see Table 2-1), Alternative 4 would be consistent with requirements of Section 118 related to the ZMRG. Also, Alternative 4 would be consistent with all other sections of the MMPA.

##### **4.3.4.2 Magnuson-Stevens Act**

Like Alternative 3, Alternative 4 would have an indirect, minor, positive effect on bycatch reduction of species under the jurisdiction of the Magnuson-Stevens Act. Alternative 4 would require marine mammal incidental mortality and serious injury to be reduced to an insignificant level approaching a zero rate. The indirect, minor, positive effect would be that bycatch of species under the jurisdiction of the Magnuson-Stevens Act may be further reduced as a result of defining ZMRG. It is likely that TRTs would propose gear modifications and other restrictions that would reduce bycatch of other non-target species as a positive side effect to techniques to reduce marine mammal incidental mortality and serious injury. Compared to the other action alternatives, these minor, positive effects on bycatch reduction would be moderate under Alternative 4 (see Tables 4-2 and 4-13).

Defining ZMRG under Alternative 4 would have unknown impacts on EFH, and no formal consultation with the NMFS Office of Habitat Conservation is necessary (see Appendix B). However, it is possible that future TRP provisions would take into account possible impacts on EFH. For example, if a take-reduction measure shifts fishing effort to a new location that has otherwise been unaffected by fishing operations, such new fishing effort should be analyzed to determine if EFH would be affected. Similarly, future TRP provisions could benefit EFH by, for example, restricting certain types of fishing gear in areas that have EFH. If appropriate, NEPA analysis and coordination with the NMFS Office of Habitat Conservation would be conducted for new TRP provisions.

## 4.4 Cumulative Impacts

This section discusses the cumulative impacts of implementing an alternative. Such impacts include effects on institutions and management concepts that are beyond the realm of Section 118 of the MMPA. Because the No Action Alternative would not result in any impacts beyond those mentioned in above sections, this section addresses cumulative impacts only for the action alternatives.

Generally, the cumulative impacts would be the same for each of the action alternatives. Because regulatory measures to achieve the ZMRG would not be developed until TRTs convene, specific impacts on protected marine populations and on commercial fisheries will be analyzed in the future in separate NEPA documents for the TRPs. The impacts of defining the ZMRG under any action alternative would be consistent with other fishery regulatory programs. All fishery regulatory programs concerning marine mammals are dedicated to protecting and conserving marine mammals while considering socioeconomic effects on the fishing industry. The action alternatives in this EA would contribute positively to most of these programs by ultimately reducing the number and intensity of marine mammal interactions with commercial fisheries.

The only minor, negative cumulative effects on regulatory procedures would apply to Alternatives 3 and 4 regarding fishery categories. Under Alternatives 3 and 4, the fishery classification procedure would have to be redesigned because the criteria to categorize fisheries in the LOF would not be consistent with the ZMRG definitions. Such a process would have minor, negative effects on NMFS as it would require time to design and implement a new classification scheme, which is used in the annual LOF and SARs. However, the preferred alternative, Alternative 2, would not require a new fishery classification scheme as the ZMRG definition would correspond to the categorizing criteria currently used to produce the LOF.

The socioeconomic effects on commercial fisheries are not quantifiable at this stage; future NEPA documents for specific TRPs would address specific socioeconomic impacts for those TRPs. However, under any of the action alternatives most commercial fisheries (approximately 90 percent) would not have to further reduce incidental mortality and serious injury of marine mammals. Also, when considered in combination with other fishery regulations already in place, additive effects of the preferred alternative on socioeconomics of the commercial fishing industry are expected to be minor. Such minor, negative effects may include slight increases in costs to commercial fishermen to abide by required TRP measures required to achieve ZMRG. Minor, positive effects may include increased landings of the target species if future required measures reduce bycatch enough to increase landings per trip for the intended catch.

The action alternatives may have minor, indirect effects on other industries associated with commercial fishing. Such industries include gear manufacturing and the seafood industry. Effects on gear manufacturers would be correlated to any gear modifications proposed by TRPs. Gear modifications could result in substantial, short-term, positive effects on gear manufacturers if a new type of gear is developed and required by new



TRPs. Minor, long-term, positive impacts may result if TRP requirements include any language to replace or mend gear in regular time cycles. Fishermen who do not make their own gear would rely on gear manufacturers and contribute financially to that industry, thus boosting its economy.

The seafood industry includes seafood processors, restaurants, and markets. Ultimately, the seafood consumer may be affected as well. If the costs to fishermen increase as a result of TRP provisions (i.e., gear modification/replacement or seasonal/area closures) required to attain the ZMRG, the cost of fish may increase throughout the seafood industry. The degree of such economic ripple effects would depend on specific TRP provisions.

Finally, implementation of a proposed action alternative may, in the long term, result in fewer takes of marine mammals nationwide, which is a moderate, positive, long-term impact. This may allow NMFS to focus more regulatory effort on methods to reduce other human-caused mortality and serious injury, such as vessel strikes and marine pollution.

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## 4.5 Consideration of Significant Criteria

In this EA, the context and intensity of the factors identified in NOAA's NEPA guidelines and regulations (see section 1.7) were considered as well as short- and long-term effects of the proposed action. This section focuses on the preferred alternative, Alternative 2, and addresses the criteria from the guidelines and regulations as follows:

1. No significant beneficial or adverse environmental effects are expected. While beneficial environmental effects are expected under the preferred alternative in the form of marine mammal conservation, it is not expected that such effects would significantly alter the populations of affected marine mammals. Minor, adverse socioeconomic effects on the commercial fishing industry may result in slightly increased costs to the fishermen. However, such costs could be balanced by increased landings of the target species as future TRP measures required to achieve ZMRG would likely reduce bycatch and thus increase the fishermen's profits.

2. The preferred alternative is not expected to impact public health and safety. It is expected that future TRP measures would not negatively affect health and safety of any commercial fishermen. However, any potential effects on health and safety, based on specific TRP measures, would be analyzed in future NEPA documents for those specific TRPs.

3. The geographic area of the preferred alternative includes what could be considered unique characteristics such as EFH and critical habitat because the EA concerns all US commercial fisheries. However, the proposed action is directed at reducing incidental mortality and serious injury of marine mammals and is not expected to result in any impacts on the physical environment.

4. The effects of the preferred alternative on the human environment are not likely to be highly controversial. While comments were received in response to the ANPR from several different viewpoints, many comments agreed with the preferred alternative or are not consistent with the intent of the MMPA as described in section 2.3. Additionally, the preferred alternative is very similar to the No Action Alternative; controversy is unlikely because the preferred alternative simply gives regulatory power to the status quo, which is using ten percent of PBR as the  $T_{ins}$  when defining ZMRG. For these reasons, the preferred alternative is not highly controversial to the extent that the preparation of an EIS is necessary.

5. The effects of the preferred alternative are not highly uncertain, nor do they involve unique or unknown risks. The effect of defining the ZMRG is that TRTs would have quantifiable long-term goals for the TRPs. Although specific regulatory measures of future TRPs are unknown, it is certain that the effects of such measures would benefit the conservation of marine mammal as provided by the MMPA and cause minimal impacts on the commercial fishing industry when taken into consideration with other commercial fishing regulations. No unique or unknown risks would result from implementing such measures.

6. Defining the ZMRG does not establish a precedent for future actions with significant effects. The ZMRG is already a mandate as provided by the MMPA so defining the ZMRG would not set any precedent for future actions. Any future regulatory measures designed to achieve the ZMRG would require independent NEPA analysis. Similarly, no decision in principle about a future consideration is involved because specific TRTs would develop future measures required for a fishery or group of fisheries to achieve the ZMRG. A resulting TRP would require its own NEPA analysis before implementing any such measures. Therefore, defining ZMRG according to the preferred alternative would not establish a precedent for future actions with significant effects or represent a decision in principle about a future consideration.

7. There are no individually insignificant but cumulatively significant impacts of the proposed action. As discussed, there are other commercial fishing regulations in place and the additive effects of defining the ZMRG are minor. Socioeconomic effects would be minimal because the ZMRG is already a requirement as provided by the MMPA. The preferred alternative would create a regulatory definition of the ZMRG that would quantify the long-term goal of TRPs. Regarding impacts on marine mammals, the expected effects would be to decrease the amount of incidental mortality and serious injury, but such effects are not expected to be significant.

8. The proposed action would not adversely affect entities listed in or eligible for listing in the National Register of Historic Places, nor would it cause loss or destruction of significant scientific, cultural, or historic resources.

9. The proposed action is not expected to have a significant adverse impact on endangered or threatened species, and is not expected to affect designated critical habitat.

981 The preferred alternative is designed to have beneficial effects on endangered or  
982 threatened marine mammals by reducing incidental mortality and serious injury. Also,  
983 future TRP measures required to achieve ZMRG are not expected to adversely affect  
984 critical habitats.

985  
986 10. The proposed action would not be in violation of Federal, state, or local laws for  
987 environmental protection.

988  
989 11. The proposed action is not likely to result in the introduction or spread of a  
990 nonindigenous species. The proposed action applies to the commercial fishing industry  
991 and does not involve potential species transfer.  
992